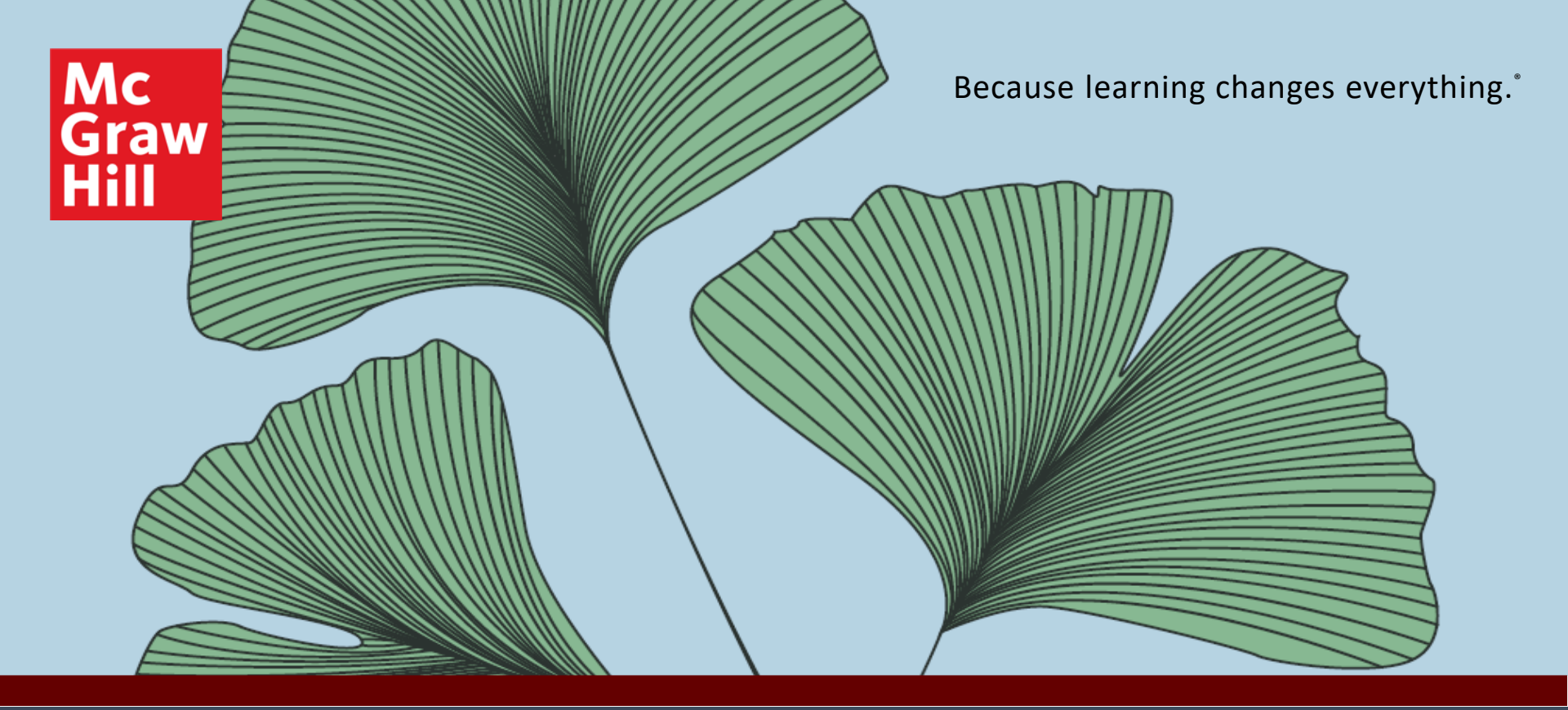

Chapter 9

Short-Term Economic Fluctuations and Fiscal Policy

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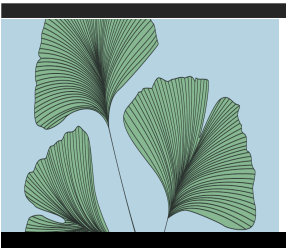

Learning Objectives 1

1. List the four phases of the business cycle and explain the primary characteristics of recessions and expansions.
2. Use potential output and the output gap to analyze an economy's position in the business cycle.
3. Define the natural rate of unemployment and show how it is related to cyclical unemployment.
4. Discuss the differences between how the economy operates in the short run versus the long run.

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Learning Objectives 2

5. Identify the key assumptions of Keynesian theory and explain how this affects the production decisions made by firms and the consumption decisions made by households.
6. Show how a change in aggregate expenditure can cause a change in short-run equilibrium output and how this is related to the income-expenditure multiplier.
7. Explain why basic Keynesian theory suggests that fiscal policy is useful as a stabilization policy.
8. Discuss the qualifications that arise in applying fiscal policy in real-world situations.

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Recessions and Expansions 1

Business Cycles are short-term fluctuations in GDP and other variables.

A **recession (or contraction)** is a period in which the economy is growing at a rate significantly below normal.

- A period during which real GDP falls for two or more consecutive quarters.
- A period during which real GDP growth is well below normal, even if not negative.
- A variety of economic data are examined.

A **depression** is a particularly severe recession.

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Recessions and Expansions 2

A **peak** is the beginning of a recession.

- High point of the business cycle.

A **trough** is the end of a recession.

- Low point of the business cycle.

An **expansion** is a period in which the economy is growing at a rate significantly above normal.

A **boom** is a strong and long-lasting expansion.

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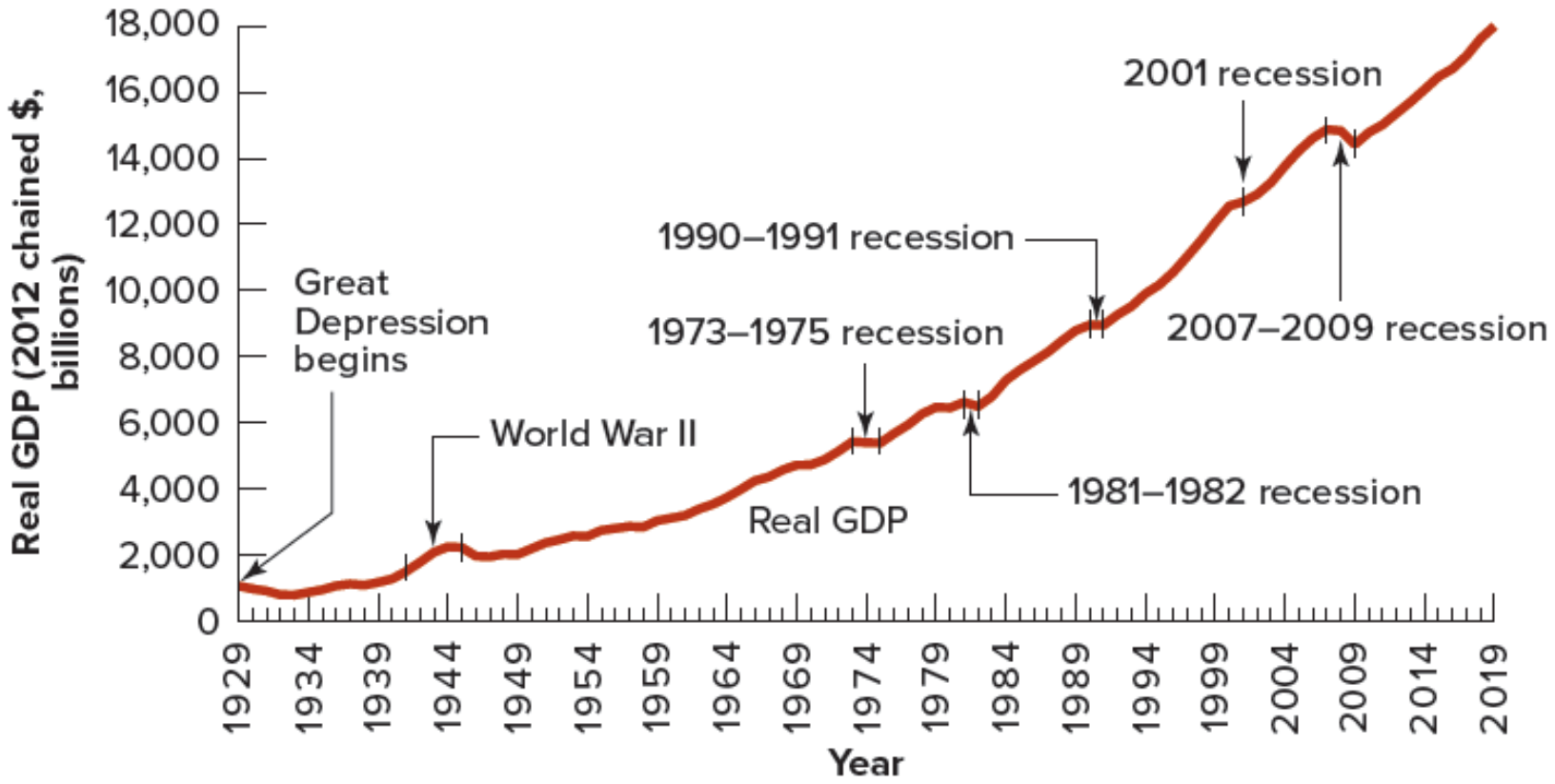
Fluctuations in US Real GDP, 1929-2019



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U.S. Recessions since 1929

Peak	Trough	Duration (months)	Highest Unemployment Rate	Change Real GDP	Duration of expansion (months)
8/29	3/33	43	24.9%	−26.3%	50
5/37	5/38	13	19.0	−3.3	80
2/45	10/45	8	3.9	−11.6	37
11/48	10/49	11	5.9	−0.5	45
7/53	5/54	10	5.5	−0.6	39
8/57	4/58	8	6.8	−0.7	24
4/60	2/61	10	6.7	2.6	106
12/69	11/70	11	5.9	0.2	36
11/73	3/75	16	8.5	−0.7	58
1/80	7/80	6	7.6	−0.2	12
7/81	11/82	16	9.7	−1.9	92
7/90	3/91	8	7.5	−0.1	120
3/01	11/01	8	6.0	1.0	73
12/07	6/09	18	9.6	−3.1	128
2/20					

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Calling the 2020 Recession

NBER declared a recession February 2020.

- Previous recession ended June 2009.
- 128-month expansion.

Three important monthly indicators used to date recessions:

- Real personal consumption expenditures.
- Non-farm employment.
- Real after-tax household income.

Coincident indicators move with overall economy.

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Short-Term Economic Fluctuations

Economists have studied business cycles for at least a century.

- Recessions and expansions are irregular in their length and severity.
- Contractions and expansions affect the entire economy.
  - May have global impact.
    - Great Depression of the 1930s was worldwide.
    - U.S. recessions of 1973 – 1975 and 1981 – 1982.
    - U.S. recession of 2007 – 2009 (Great Recession).

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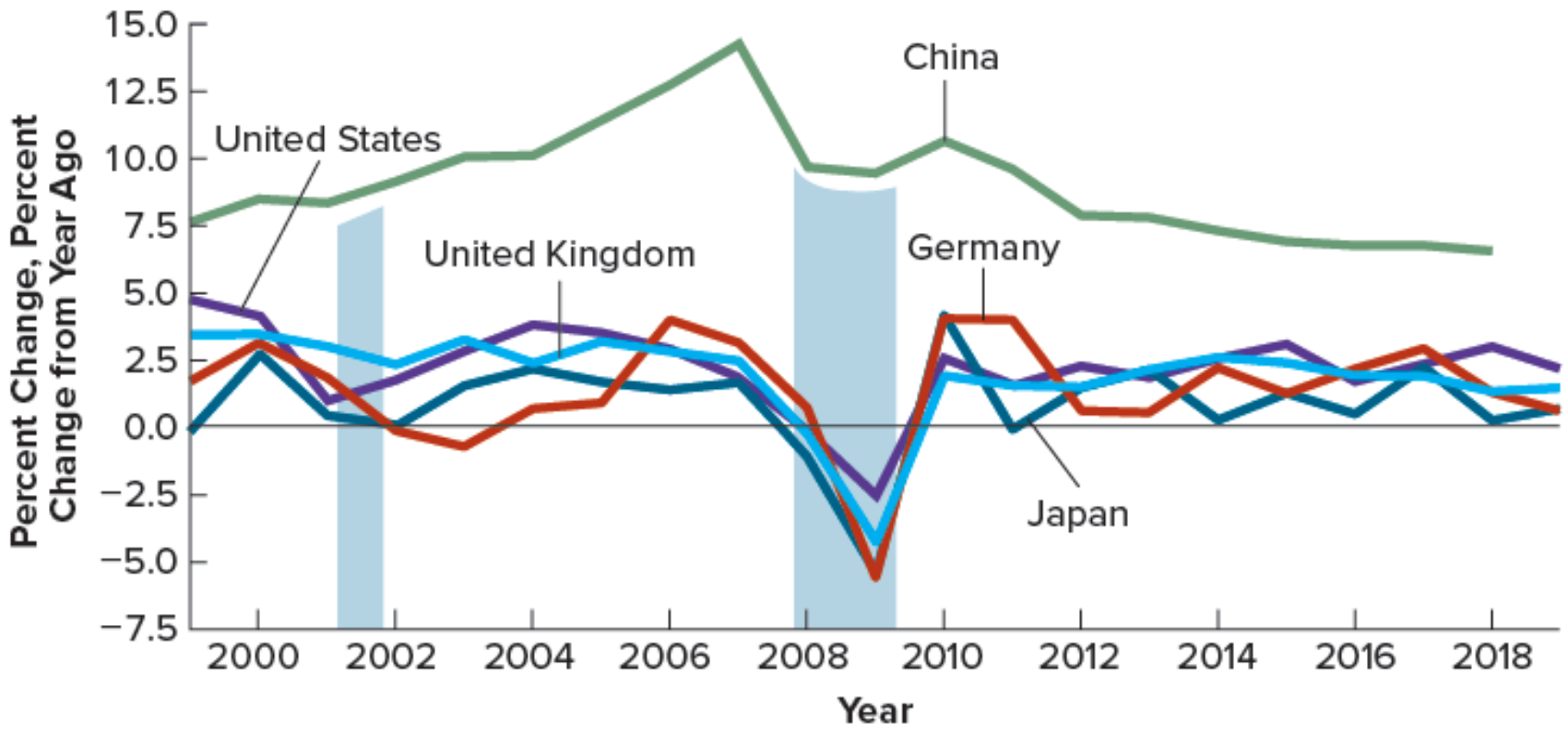
Real GDP Growth, 1999 – 2019



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Symptoms of Business Cycles

Cyclical unemployment rises sharply during recessions.

- Decrease in unemployment lags the recovery.
- Real wages grow more slowly for those employed.
- Promotions and bonuses are often deferred.
- New labor market entrants have difficulty finding work.

Production of *durable goods* is more volatile than services and *non-durable goods.*

- Cars, houses, capital equipment less stable.
- **Durable goods**: yield utility over time and last 3 years or more.
- **Nondurable goods**: quickly consumed, having life span of less than 3 years.

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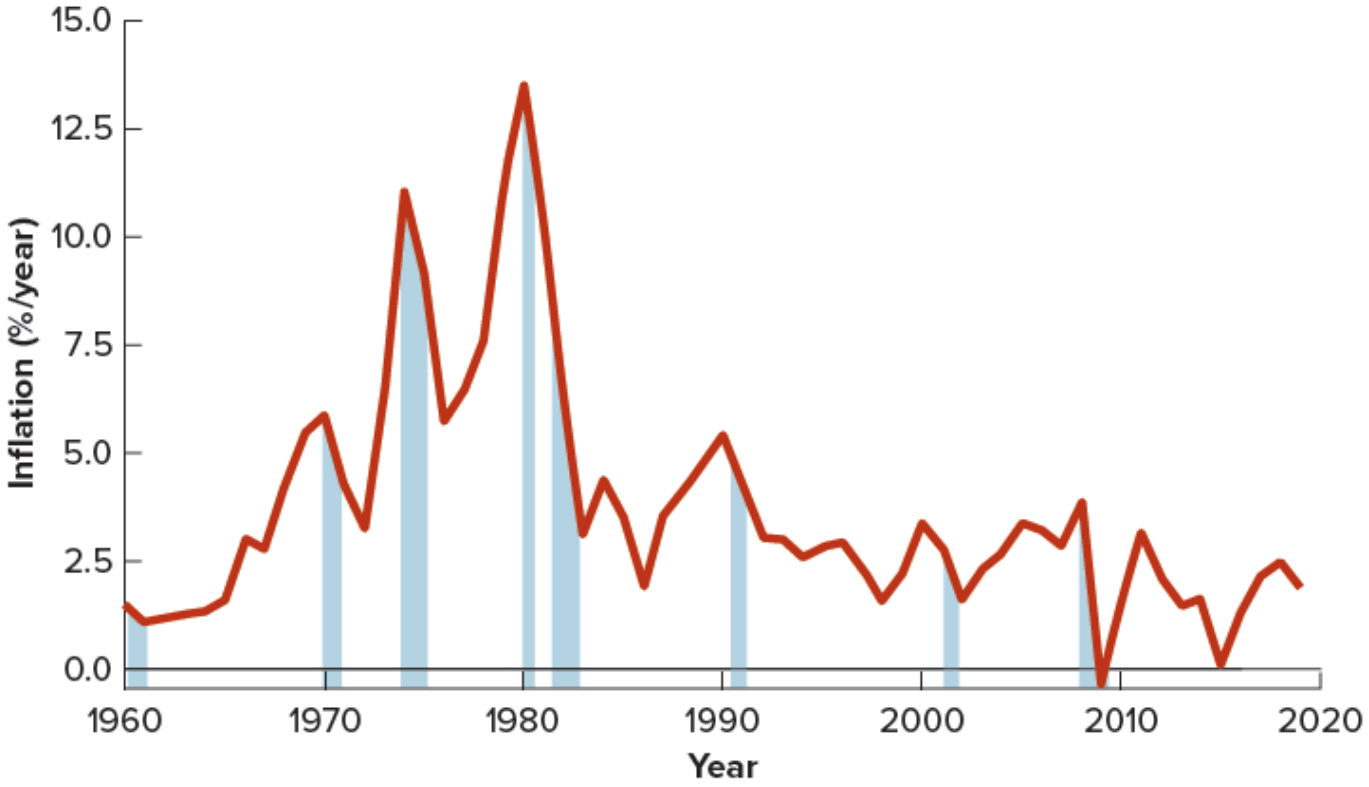
U.S. Inflation, 1960-2019

Inflation generally decreases during a business cycle.

- Decreases at other times as well.



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Potential Output

Potential output, *Y** , is the maximum sustainable amount of output that an economy can produce.

- Also called **full-employment output.**
- Use capital and labor at greater than normal rates and exceed *Y** – for a period of time.

Potential output grows over time.

Actual output grows at a variable rate.

- Reflects growth rate of *Y**.
  - Variable rates of technical innovation, capital formation, weather conditions, etc.
- Actual output does not always equal potential output.

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Output Gaps

The **output gap** is the difference between the economy's actual output and its potential output, relative to potential output, at a point in time; $Y - Y^*$.

- **Recessionary gap** is a negative output gap, occurs when potential output exceeds actual output; $Y^* > Y$.
- **Expansionary gap** is a positive output gap, occurs when actual output is higher than potential output; $Y^* < Y$.

Policymakers consider stabilization policies when there are output gaps.

- Recessionary gaps mean output and employment are less than their sustainable level.
- Expansionary gaps lead to inflation.

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Natural Rate of Unemployment 1

Recessionary gaps have high unemployment rates.

Expansionary gaps have low unemployment rates.

Frictional and structural unemployment are always present in the labor market.

- ***Frictional unemployment*:** Short-term unemployment related to matching of workers and jobs.
- ***Structural unemployment*:** Long-term chronic unemployment in normal conditions – perhaps skills are outdated.

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Natural Rate of Unemployment 2

The **natural rate of unemployment**, ***u****, is the sum of frictional and structural unemployment.

- Unemployment rate when cyclical unemployment is 0.
- Occurs when *Y* is at *Y**.

Cyclical unemployment is the difference between total unemployment, *u*, and *u**.

- Recessionary gaps have $u > u^*$.
- Expansionary gaps have $u < u^*$.

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U.S. Natural Rate of Unemployment 1

From 6.2% in 1978 to 4.4% in 2020.

- Unemployment stayed close to 4% for several years.
- Natural rate of unemployment could be 4.5% or less.

Possible explanations.

- Frictional unemployment decreased.
- Structural unemployment decreased.

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U.S. Natural Rate of Unemployment 2

Age structure of the population has changed.

- Share of working age population ages 16 – 24 has declined from 25% to 14%.
  - This group has higher unemployment than older workers.
    - Short-term jobs.
    - Career shopping.
    - Interrupt work for school or military service.
  - Frequent job changes increases frictional unemployment.
  - Lower skills means more structural unemployment.

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U.S. Natural Rate of Unemployment 3

Labor markets may be more efficient at matching job openings and workers.

- Reduces frictional and structural unemployment.
  - Temporary agencies.
    - Temp work can lead to permanent position.
  - Online job boards.
  - Less time between jobs.

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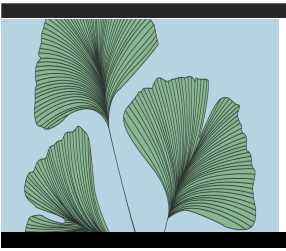

Short-Term Fluctuations 1

Output gaps arise for two main reasons.

- Markets require time to reach equilibrium price and quantity.
  - Firms change prices infrequently.
  - Quantity produced is not at equilibrium during the adjustment period.
  - Firms produce to meet the demand at current prices.

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Short-Term Fluctuations 2

Output gaps arise for several reasons.

- Changes in total spending at preset prices affects output levels.
  - When spending is low, output will be below potential output.
  - Changes in economywide spending are the primary causes of output gaps.
  - Policy: adjust government spending to close the output gap.

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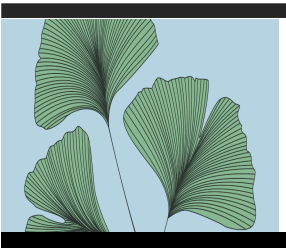

Causes of Short-Term Fluctuations 1

The economy has self-correcting mechanisms.

- Firms eventually adjust to output gaps.
  - If spending is less than potential output, firms will slow the increase of their prices.
  - If spending is more than potential output, firms increase prices.
    - Potential inflationary pressure.

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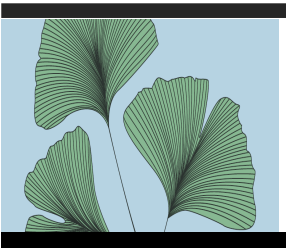

Causes of Short-Term Fluctuations 2

The economy has self-correcting mechanisms.

- Eventually, prices reach equilibrium and eliminate output gaps.
- Production is at potential output levels.
  - Output is determined by productive capacity.
  - Spending influences only price levels and inflation.

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Alice's Ice Cream – Production Capacity

Daily output of the store is determined by.

- Production capacity.
  - Amount of capital.
  - Labor employed (includes hours worked).
  - Productivity of capital and labor.
- Capacity changes slowly, but periodic disruptions happen.
  - Machine failure.
  - Workers fail to report for work.
  - Power outage.
  - Supplies not delivered.

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Alice's Ice Cream – Demand Fluctuations

Predictable changes hour by hour.

- Day of the week patterns.
- Annual cycles of demand.

Unpredictable changes in demand.

- Weather.
- Community events.
  - Increase sales or divert customers elsewhere.
- Demand for specific flavors.

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Alice's Ice Cream – Setting Prices

Fully flexible prices are unrealistic.

- Minute-by-minute pricing is confusing to customers.
- Costs of an auction exceed Alice's benefits.
  - Continuous purchases in low volumes by different customers.

Alice sets prices.

- Survey of competitors.
- Product strengths and weaknesses.
- Analyzes sales over time to see if adjustments are needed.
- Alice *meets demand* in the short run.

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Alice's Ice Cream – Long Run

Alice observes consistently strong demand for her products.

- Waiting lines.
- Low inventory.
- Fully utilized production capacity.

Alice's first response is to raise prices.

- Implemented quickly.

Alice evaluates expanding capacity.

- If expansion does not raise average costs, Alice will expand and return to original prices.

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Alice's Ice Cream – Macroeconomic Lessons

In the short run, producers meet demand at existing prices.

- Total spending drives output levels.
- Gather data and analyze business opportunities.

In the long-run, prices reach equilibrium levels.

- Output is at its potential level.

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John Maynard Keynes (1883 – 1946)

After World War I, Keynes recognized that the terms of the peace would lead to another war.

- German war reparations would prevent growth and recovery.

The General Theory of Employment, Interest, and Money (1936) is his best-known work.

- Problem was explaining why economies kept a recessionary gap for long periods.
  - Aggregate spending is too low for full employment.
  - Stabilization policies use government spending or taxes to substitute for spending in other sectors.

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The Keynesian Model

Building block for current theories of short-run economic fluctuations and stabilization policies.

In the short run, firms meet demand at preset prices.

- Firms typically set a price and meet the demand at that price in the short run.
  - **Menu costs** are the costs of changing prices.
    - Determining the new price.
    - Incorporating prices into the business.
    - Informing consumers of new prices.

Firms change prices when the marginal benefits exceed the marginal costs.

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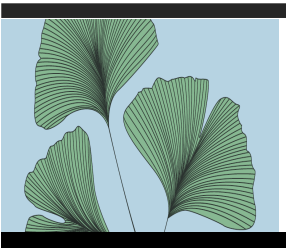

Technology of Changing Prices

Technology has reduced menu costs.

- Bar codes and scanners reduce costs of changing prices in the store.
- Online surveys.

Highly segmented airline pricing.

Internet mechanisms for setting price.

- eBay.
- Priceline.

Ride-sharing apps.

Other costs remain.

- Competitive analysis.
- Deciding the new prices.
- Informing consumers.

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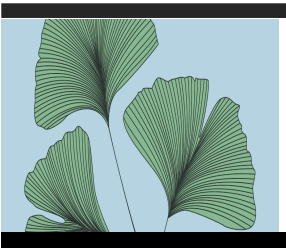

Aggregate Expenditure

Aggregate expenditure (AE) is the sum of the following four components:

- Consumer expenditures, or consumption (*C*) by households.
- Investment (*I*) is spending by domestic firms on new capital goods.
- Government purchases (*G*) are made by federal, state, and local governments.
- Net exports (*NX*) equals exports minus imports.

$$Y = C + I + G + NX$$

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Consumption Expenditures

Consumption (*C*) accounts for two-thirds of total spending.

- Includes purchases of goods, services, and consumer durables, but not new houses.

An important determinant of the amount people consume depends on **disposable income**: the after-tax amount of income that people are able to spend, (*Y* – *T)*.

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Consumption Function 1

The **consumption function** is the relationship between consumption spending (C) and its determinants, notably disposable income ($Y - T$).

$$C = \bar{C} + mpc(Y - T)$$

- $\bar{C}$ is **autonomous consumption**, or spending not related to the level of disposable income.
  - A change in C shifts the consumption function.
- *mpc*, the **marginal propensity to consume** is the amount by which consumption rises when disposable income rises by \$1. We assume that $0 < mpc < 1$.
- (Y – T) is disposable income.

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Consumption Function 2

$$C = \overline{C} + (mpc)(Y - T)$$

The **wealth effect** is the tendency of changes in asset prices to affect household's wealth and thus their consumption spending.

- This effect is included in *C.*

Autonomous consumption also captures the effects of interest rates on consumption.

- Higher rates increase the cost of using credit to purchase consumer durables and other items.

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Income-Expenditure Multiplier

Short-run equilibrium output is the level of output that prevails during the period in which prices are predetermined.

The **income-expenditure multiplier (or multiplier)** shows the effect of a one-unit decrease or increase in expenditure on short-run equilibrium output.

- If the multiplier is 2, then an initial $1 change in expenditure leads, eventually, to a $2 change in short-run equilibrium output in the same direction.
  - An initial $50 billion decrease in expenditure reduces short-run equilibrium output by $100 billion.
- **The larger the *mpc*, the greater the multiplier.**

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Stabilization Policy

Stabilization policies are government policies that are used to affect aggregate expenditure, with the objective of eliminating output gaps.

- **Expansionary policies** government policy actions intended to increase spending and output.
- **Contractionary policies** government policy actions intended to reduce spending and output.
- **Fiscal policy** uses changes in government spending, transfers, or taxes.
- **Monetary policy** uses changes in the money supply.

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Government Spending

One of the two main components of fiscal policy.

Keynes felt that changes in government purchases were the most effective tool for reducing or eliminating output gaps.

- An initial change in aggregate output resulting from a change *C*, *I*, *NX* can be offset by a change in the opposite direction in *G.*

Increased government purchases of goods and services can help eliminate a recessionary gap.

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U.S. Military Spending

Military spending as a share of GDP decreased sharply after World War II.

- Peaks for wars and Reagan military buildup.

Added demand from military spending helped end the Great Depression.

- Recessions associated with declines in military spending.
- Increases in *G* help stimulate the economy.

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U.S. Military Expenditures as a Share of GDP, 1929-2019

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Taxes and Transfers

Net tax (*T*) = total taxes − transfer payments − government interest payments.

Aggregate expenditures are influenced by changing total taxes and/or transfer payments.

- The effect is indirect, channeled through the effects on disposable income.
  - Lower taxes or higher transfers increase disposable income.
  - Increases in disposable income lead to higher *C*.

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Federal Tax Rebates – 2001

Economy showed signs of slowing in early 2001.

- Federal government rebated $300 to individual and $600 to couples.
  - Total rebates were about $38 billion.
- Also made cuts in tax rates.

Two-thirds of the rebates were spent by households within six months

Successful policy

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Fiscal Policy During the 2007 – 2009 Recession

American Recovery and Reinvestment Act of 2009.

- $288 billion in tax cuts.
- $600 billion government spending increase.

Both were effective at raising consumption spending Real GDP higher than it would have been otherwise

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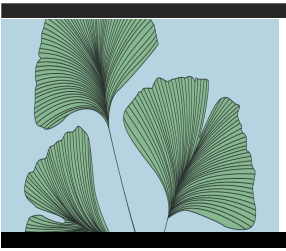

2020 CARES Act

Coronavirus aid, relief, and economic security (CARES) act signed into law March 2020.

Largest economic relief bill to date totaling $2.2 trillion.

- Hundreds of billions of dollars in tax-relief.
- Stimulus checks and payroll credits for employers.

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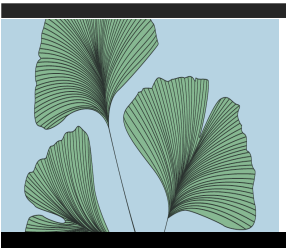

Supply-Side Effects of Fiscal Policy

Fiscal policy may affect potential output as well as aggregate expenditure.

- Investment in infrastructure increases *Y**.
- Taxes and transfers affect incentives and can change potential output, *Y**.

Supply-side economists emphasize the supply-side effects of fiscal policy.

Current thinking is more moderate.

- Demand-side effects of spending matter.
- Supply-side effects also matter.

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Fiscal Policy and Deficit Spending

Government deficit is the difference between government spending and net taxes, ($G - T$).

- Large and persistent budget deficits reduce national saving.
  - Less saving means less investment which means less growth.

Managing the impact of the deficit limits the government's ability to use fiscal policy as a stimulus.

- Political considerations make it difficult to use contractionary fiscal policy.

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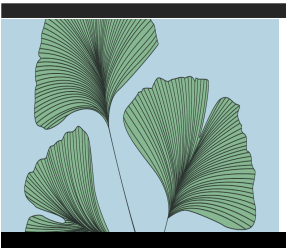

Fiscal Policy Flexibility

Two limits to fiscal policy flexibility.

- The legislative process requires time.
  - Change in fiscal policy may be slow.
- Competing political objectives.
  - National defense.
  - Entitlements such as Medicare and income support.

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Fiscal Policy Can Be Effective

Automatic stabilizers increase government spending or decrease taxes when real output declines.

- Built into laws so no decision is required.
- Unemployment compensation, progressive income tax.

Fiscal policy may be useful to address prolonged periods of recession.

- Monetary policy is more often used to stabilize the economy.

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